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Epidemiologic Notes and Reports

Measles — United States, First 26 Weeks, 1987

For the first 26 weeks of 1987, a provisional total of 2,637 measles cases was reported to CDC by 37 states and 5.6% of the nation's 3,138 counties.* This total is 32.7% less than the 3,921 cases reported for the same period in 1986 (*1*), when 42 states and 9.0% of the counties reported cases. The overall incidence rate for the first half of 1987 was 1.1 cases per 100,000 population; the rate for the first half of 1986 was 1.7/100,000.

Seven states and New York City accounted for 2,148 (81.5%) of the cases reported for the first 26 weeks of 1987: California reported 647; New York City, 414; New Mexico, 303; Texas, 200; Missouri, 178; New Hampshire, 150; Wisconsin, 139; and Illinois, 117. Incidence rates greater than 3.0/100,000 occurred in New Mexico (22.8), Montana (15.6), New Hampshire (13.2), New York City (5.1), Delaware (4.5), Vermont (4.1), and Missouri (3.6).

CDC's Division of Immunization received detailed information on 2,595 (98.4%) of the 2,637 reported cases. Of these, 2,305 (88.8%) met the standard clinical case definition for measles,† and 723 (27.9%) were serologically confirmed. The usual seasonal pattern was observed—most cases occurred between March and May (weeks 9 to 19) (Figure 1).

Fifty-seven (2.2%) of the 2,595 cases were known to be imported from other countries; 30 (52.6%) of these cases occurred among U.S. citizens. An additional 74 cases (2.9%) were epidemiologically linked to imported cases within two generations. Forty-six outbreaks (five or more epidemiologically related cases) accounted for 87.6% of all cases. Five outbreaks of more than 100 cases each accounted for 59.2% of all reported cases.

As in 1986, almost 30% of cases involved children under 5 years of age (Table 1). Two hundred twenty-five (30.0%) of the 750 preschool-aged patients were less than 1 year of age; 122 (16.3%) were 12-14 months of age; 32 (4.2%), 15 months of age; and 371 (49.5%), 16 months through 4 years of age. The 15- to 19-year age group also accounted for approximately 30% of the cases and was the only age group for which the incidence rate did not decrease between 1986 and 1987. The groups aged zero to

*A provisional total of 3,588 was reported for all of 1987.
†Fever 38.3 °C (101 °F) or higher, if measured; generalized rash lasting 3 or more days; and at least one of the following: cough, coryza, or conjunctivitis.

Measles — Continued

4 years and 15-19 years had the highest incidence rates (4.1/100,000 each); the 10- to 14-year age group had the next highest (3.0/100,000).

Complications were reported in 351 (13.5%) of the 2,595 cases. Otitis media was reported in 175 (6.7%) cases; diarrhea, in 129 (5.0%); pneumonia, in 68 (2.6%); and encephalitis, in 2 (0.1%). Two hundred and one (7.7%) of these patients were hospitalized. Four deaths were attributed to measles, for a death-to-case ratio of 1.5:1,000. All four patients were immunocompromised. Two were 4-year-olds with acquired immunodeficiency syndrome; one was a 9-year-old who had autoimmune hemolytic anemia and was receiving corticosteroid therapy; and one was a 57-year-old with chronic lymphocytic leukemia. Two cases were acquired in the hospital, and two were acquired in the community.

Of the 1,805 (69.6%) patients for whom setting of transmission was reported, 960 (53.2%) acquired measles in primary or secondary schools; 122 (6.8%), in colleges

FIGURE 1. Reported measles cases, by week of rash onset — United States, first 26 weeks, 1987

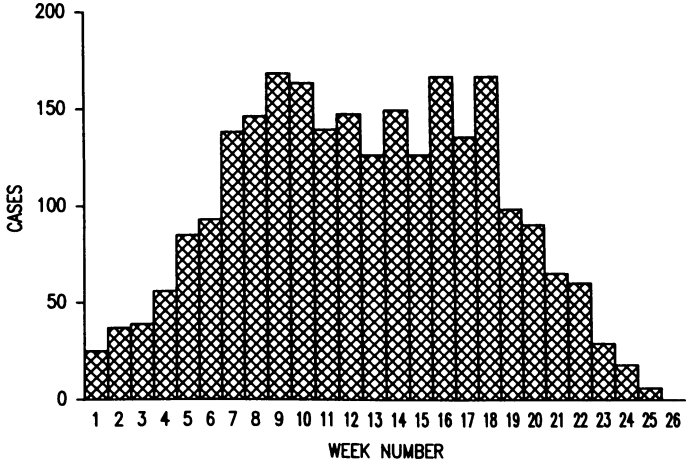

TABLE 1. Reported measles cases and estimated incidence rates* of measles, by age of patients — United States, first 26 weeks, 1986 and 1987

Age Group (years)	1986†			1987			Rate Change (%)
	No.	(%)	Rate	No.	(%)	Rate	
0-4	1,249	(32.0)	7.0	750	(28.9)	4.1	(−41.4)
5-9	430	(11.0)	2.6	237	(9.1)	1.4	(−46.2)
10-14	1,006	(25.8)	5.7	500	(19.3)	3.0	(−47.4)
15-19	749	(19.2)	3.9	760	(29.3)	4.1	(+5.1)
20-24	243	(6.2)	1.1	149	(5.7)	0.7	(−36.4)
≥25	224	(5.7)	0.2	199	(7.7)	0.1	(−50.0)
Total	**3,901**	**(100.0)**	**1.7**	**2,595**	**(100.0)**	**1.1**	**(−35.3)**

*Rates per 100,000 population are based on provisional data for both years.
†Estimated total excludes 20 reported cases for which the age group was unknown.

Measles – Continued

or universities; 386 (21.4%), at home; 114 (6.3%), in medical settings; 31 (1.7%), in day-care centers; and 192 (10.6%), in a variety of other settings including work, church, and the military.

A total of 1,274 (49.1%) patients had been vaccinated on or after their first birthdays. This group included 427 (33.5%) who were vaccinated at 12-14 months of age.[§] There were 1,213 (46.7%) unvaccinated patients and 108 (4.2%) with histories of vaccination before their first birthdays.

Of the 2,595 cases, 704 (27.1%) were classified as preventable (*2*), and 1,891 (72.9%), as nonpreventable (Tables 2, 3). Between 1986 and 1987, the absolute number and proportion of preventable cases decreased for all except the over 25-year age group. The highest proportion of preventable cases occurred among persons not of school age—87.5% of cases among adults 25-29 years of age and 68.2% of cases among children 16 months through 4 years of age were preventable. Two hundred sixty-six (37.8%) of the total number of preventable cases involved children 5-19 years of age, and 17.8% of the total cases in this age group were preventable. Cases among adequately vaccinated persons constituted 67.0% of nonpreventable cases and 48.8% of total cases (Table 3). Of the 1,497 school-aged children who acquired measles, 1,119 (74.7%) had been adequately vaccinated, and 406 (27.1%) had been vaccinated at 12-14 months of age.

Reported by: Div of Immunization, Center for Prevention Svcs, CDC.

Editorial Note: After the record low of 1,497 measles cases in 1983, the number of measles cases increased each year through 1986. The number of cases reported for the first 26 weeks of 1987 is less than that reported during the comparable period in 1986 and reverses this trend. The incidence rates have decreased in all except the 15- to 19-year age group. The increase in this group was attributable to several large outbreaks in secondary schools and colleges.

[§]Includes two adequately vaccinated patients who were born before 1957 and five who were less than 16 months of age.

TABLE 2. Preventability of measles cases, by age of patients – United States, first 26 weeks, 1986 and 1987*

	1986†			1987		
		Preventable Cases			Preventable Cases	
Age Group	Total Cases	No.	(%)	Total Cases	No.	(%)
≤15 mos	622	0	(0.0)	379	0	(0.0)
16 mos-4 yrs	627	533	(85.0)	371	253	(68.2)
5-9 yrs	430	144	(33.5)	237	41	(17.3)
10-14 yrs	1,006	242	(24.1)	500	79	(15.8)
15-19 yrs	749	238	(31.8)	760	146	(19.2)
20-24 yrs	243	174	(71.6)	149	93	(62.4)
25-29 yrs	88	72	(81.8)	104	91	(87.5)
≥30 yrs	136	0	(0.0)	95	1	(1.1)
Total	**3,901**	**1,403**	**(36.0)**	**2,595**	**704**	**(27.1)**

*Based on provisional data for both years.
†Preventability was unknown for 20 cases in 1986.

Measles – Continued

The four deaths due to measles during the first half of 1987 are the first reported to the Division of Immunization since 1985 (*3*). All four cases either initiated or were part of nosocomial outbreaks involving medical personnel. In addition, a higher proportion of cases were acquired in medical settings in 1987 than in previous years (*4-6*). The deaths, combined with the increased proportion of cases acquired in medical settings, highlight the role of these settings in the transmission of measles and emphasize the need for immunization requirements for medical personnel at risk of exposure (*7,8*).

As in previous years, a large proportion of persons who acquired measles had been vaccinated. In an effort to decrease the occurrence of these cases, changes in the current immunization strategy are being discussed. In many outbreaks, persons vaccinated at 12-14 months of age have been demonstrated to be at slightly higher risk for measles than persons vaccinated at 15 or more months of age. Therefore, the Immunization Practices Advisory Committee (ACIP) recently recommended that revaccination of persons previously vaccinated at 12-14 months of age be considered during outbreaks (*8,9*). Most cases of measles among persons who received vaccine at 15 months of age or older appear to be the result of primary vaccine failure and not of waning immunity (*10*).

The two major impediments to measles elimination in the United States—unvaccinated preschoolers and vaccine failure in the school-aged population—require different solutions. Health-care providers should take advantage of every opportunity to vaccinate these children (*11*). Measles-containing vaccines should be administered to eligible children regardless of the need for other vaccines. The ACIP now recommends simultaneous administration of MMR, DTP, and OPV at 15 months of age (*12*), both routinely and for children behind on their immunization schedules.

The number of vaccine failures among children 5-19 years of age has stimulated efforts to devise strategies to reduce the rate of primary vaccine failure. CDC is

TABLE 3. Classification of measles cases – United States, first 26 weeks, 1987*

Classification	Cases		
	No.	(%) of Nonpreventable	(%) of Total
Nonpreventable			
<16 Mos. of Age	379	(20.0)	(14.6)
Born Before 1957	94	(5.0)	(3.6)
Adequately Vaccinated	1,267	(67.0)	(48.8)
Prior Physician Diagnosis	10	(0.5)	(0.4)
Non-U.S. Citizens	34	(1.8)	(1.3)
Exemptions	107	(5.7)	(4.1)
Medical	(17)		
Religious	(34)		
Philosophic	(56)		
Subtotal	1,891	(100.0)	(72.9)
Preventable	704		(27.1)
Total	**2,595**		**(100.0)**

*Provisional data.

Measles — Continued

convening a group of consultants to review the current status of efforts to eliminate measles in the United States and to discuss potential modifications (*13*) to the current strategies. These modifications include revaccination, either routinely, as a two-dose schedule, or selectively, as part of outbreak control.

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Perspectives in Disease Prevention and Health Promotion

Semen Banking, Organ and Tissue Transplantation, and HIV Antibody Testing

The following recommendations regarding storage and use of semen were prepared by the Food and Drug Administration and the Centers for Disease Control with the endorsement of the American Association of Tissue Banks, the American Fertility Society, and the American College of Obstetricians and Gynecologists.

The Public Health Service published its initial recommendations regarding screening prospective donors of semen, organs, or tissues for the presence of antibody to human immunodeficiency virus (HIV) in 1985 (*1*). The role of donated semen in the transmission of HIV infection was confirmed later that year (*2*). In late 1986 and early 1987, transmission of acute viral hepatitis B resulting from artificial insemination with donated semen was reported (*3,4*). In April of 1987, an allogenic skin graft was implicated in the transmission of HIV infection (*5*). A month later, a cadaveric organ donor was found positive for antibody to HIV after his organs were transplanted (*6*). Most recently, the House of Delegates of the American Medical Association, at its

Semen Banking — Continued

meeting held June 21-25, 1987, adopted a recommendation that testing for antibody to HIV be performed for all donors of blood, organs, or tissues intended for transplantation and for donors of semen or ova (*7*). Other professional organizations, such as the American Association of Tissue Banks and the American Fertility Society, have published standards and guidelines designed to prevent or minimize the possibility of transmitting disease through artificial insemination or allotransplants (*8,9*).

Based on current knowledge, the following recommendations are made with respect to organ and tissue transplantation and artificial insemination:

Prospective donors of organs, tissues, and semen should be tested for antibody to HIV (*1,6*). Tests for hospitalized donors should be run on a serum sample taken prior to the donor's receipt of any blood transfusions to avoid situations in which multiple transfusions might result in an antibody loss due to hemodilution (*6*). Organs and tissues from prospective donors found seropositive for HIV antibody should not be used except when the transplantation of an indispensable organ is necessary to save a patient's life.

(Continued on page 63)

TABLE I. Summary — cases of specified notifiable diseases, United States

Disease	4th Week Ending			Cumulative, 4th Week Ending		
	Jan. 30, 1988	Jan. 31, 1987	Median 1983-1987	Jan. 30, 1988	Jan. 31, 1987	Median 1983-1987
Acquired Immunodeficiency Syndrome (AIDS)	336	840	79	1,820	1,365	352
Aseptic meningitis	101	83	92	282	368	367
Encephalitis: Primary (arthropod-borne & unspec)	12	10	14	41	57	57
Post-infectious	4	1	1	5	2	5
Gonorrhea: Civilian	12,509	15,896	17,703	50,765	70,195	65,761
Military	190	361	367	788	1,427	1,427
Hepatitis: Type A	402	541	505	1,454	1,640	1,636
Type B	321	432	469	1,017	1,538	1,588
Non A, Non B	31	59	59	114	226	226
Unspecified	56	85	85	139	234	296
Legionellosis	9	15	12	28	62	39
Leprosy	-	3	5	4	16	16
Malaria	11	9	12	32	42	42
Measles: Total*	36	30	18	110	89	43
Indigenous	36	29	16	108	72	35
Imported	-	1	2	2	17	11
Meningococcal infections	72	87	58	216	277	199
Mumps	55	304	60	204	806	240
Pertussis	24	55	33	60	135	107
Rubella (German measles)	-	-	5	7	21	21
Syphilis (Primary & Secondary): Civilian	799	705	670	2,399	2,515	2,042
Military	3	1	3	10	6	13
Toxic Shock syndrome	6	8	8	15	18	27
Tuberculosis	268	418	369	890	1,190	1,165
Tularemia	4	2	2	11	7	7
Typhoid Fever	12	5	6	18	16	23
Typhus fever, tick-borne (RMSF)	6	-	1	6	4	5
Rabies, animal	75	69	79	185	246	254

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1988		Cum. 1988
Anthrax	-	Leptospirosis	2
Botulism: Foodborne (Calif. 1)	1	Plague	-
Infant (Wash. 1)	1	Poliomyelitis, Paralytic	-
Other (Calif. 1)	1	Psittacosis	3
Brucellosis	2	Rabies, human	-
Cholera	-	Tetanus (S.C. 1)	2
Congenital rubella syndrome	-	Trichinosis	2
Congenital syphilis, ages < 1 year	-		
Diphtheria	-		

*There were no cases of internationally imported measles reported for this week.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending January 30, 1988 and January 31, 1987 (4th Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1987	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988
UNITED STATES	1,820	282	41	5	50,765	70,195	1,454	1,017	114	139	28	4
NEW ENGLAND	93	13	1	-	1,576	2,465	55	71	7	13	1	2
Maine	5	1	-	-	33	90	1	3	-	1	-	-
N.H.	3	4	-	-	31	37	4	2	2	-	-	-
Vt.	-	1	-	-	15	15	-	2	-	-	-	-
Mass.	56	3	1	-	503	885	37	58	4	12	1	2
R.I.	4	3	-	-	100	221	11	5	1	-	-	-
Conn.	25	1	-	-	894	1,217	2	1	-	-	-	-
MID. ATLANTIC	376	34	2	-	5,223	12,429	76	102	9	6	8	1
Upstate N.Y.	93	23	1	-	756	1,213	50	28	3	-	8	-
N.Y. City	233	-	1	-	3,200	7,916	9	41	-	5	-	1
N.J.	50	11	-	-	893	936	17	33	6	1	-	-
Pa.	-	-	-	-	374	2,364	-	-	-	-	-	-
E.N. CENTRAL	167	45	6	-	8,197	9,275	287	143	7	11	8	-
Ohio	1	18	3	-	1,801	2,313	241	49	1	-	-	-
Ind.	1	5	2	-	631	515	5	3	-	3	-	-
Ill.	91	-	-	-	2,585	2,760	6	5	-	1	-	-
Mich.	63	22	1	-	2,841	2,908	33	81	6	7	7	-
Wis.	11	-	-	-	339	779	2	5	-	-	1	-
W.N. CENTRAL	60	15	4	1	1,997	2,691	75	26	3	1	4	-
Minn.	20	6	1	-	257	467	4	5	-	1	-	-
Iowa	4	3	3	-	188	265	5	10	2	-	2	-
Mo.	16	-	-	-	1,222	1,334	32	8	-	-	-	-
N. Dak.	-	-	-	-	10	26	1	-	-	-	-	-
S. Dak.	1	4	-	1	41	71	-	-	-	-	-	-
Nebr.	7	-	-	-	78	189	7	-	-	-	2	-
Kans.	12	2	-	-	201	339	26	3	1	-	-	-
S. ATLANTIC	250	51	2	1	13,674	18,492	52	192	9	33	2	-
Del.	3	2	-	-	228	238	-	6	-	-	-	-
Md.	57	6	-	-	1,211	1,448	5	19	1	-	-	-
D.C.	31	1	-	-	835	1,048	-	1	1	-	-	-
Va.	2	7	2	-	1,230	1,562	10	16	2	30	-	-
W. Va.	3	3	-	-	143	95	-	5	-	1	-	-
N.C.	26	8	-	-	1,950	2,838	10	42	2	-	-	-
S.C.	18	-	-	-	1,110	2,054	2	66	2	-	1	-
Ga.	28	3	-	-	2,423	2,868	9	8	-	-	-	-
Fla.	82	21	-	1	4,544	6,341	16	29	1	2	1	-
E.S. CENTRAL	53	22	4	1	4,156	4,689	47	57	10	2	2	-
Ky.	-	10	2	-	365	467	39	11	3	1	-	-
Tenn.	31	2	1	-	1,272	1,524	6	26	5	-	1	-
Ala.	10	8	1	1	1,520	1,637	-	20	2	1	1	-
Miss.	12	2	-	-	999	1,061	2	-	-	-	-	-
W.S. CENTRAL	258	3	-	-	7,430	7,836	36	14	3	5	-	-
Ark.	4	-	-	-	420	813	-	1	-	-	-	-
La.	31	-	-	-	2,363	1,019	1	-	1	-	-	-
Okla.	12	2	-	-	440	828	15	5	1	2	-	-
Tex.	211	1	-	-	4,207	5,176	20	8	1	3	-	-
MOUNTAIN	74	9	4	1	1,123	1,786	277	131	14	19	2	-
Mont.	2	-	-	-	27	38	5	6	1	2	-	-
Idaho	-	-	-	-	26	63	9	7	-	-	-	-
Wyo.	-	-	-	-	5	18	-	-	-	-	-	-
Colo.	1	5	1	-	292	385	13	16	2	6	-	-
N. Mex.	7	-	-	-	122	167	54	13	-	-	-	-
Ariz.	45	1	2	-	390	621	153	66	6	6	-	-
Utah	12	2	1	1	45	70	35	9	5	5	2	-
Nev.	7	1	-	-	216	424	8	14	-	-	-	-
PACIFIC	489	90	18	1	7,389	10,532	549	281	52	49	1	1
Wash.	1	-	-	-	440	742	27	7	1	-	-	-
Oreg.	36	-	-	-	244	405	126	46	9	2	-	-
Calif.	442	71	17	1	6,530	9,067	363	223	42	47	1	1
Alaska	3	4	-	-	103	209	33	5	-	-	-	-
Hawaii	7	15	1	-	72	109	-	-	-	-	-	-
Guam	-	-	-	-	13	21	1	-	-	-	-	-
P.R.	12	2	1	-	113	190	-	21	2	4	-	-
V.I.	-	-	-	-	31	20	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	42	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	5	12	-	1	-	-	-	-

N: Not notifiable U: Unavailable C.N.M.I.: Commonwealth of the Northern Mariana Islands

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending January 30, 1988 and January 31, 1987 (4th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1988	1988	Cum. 1988	1988	Cum. 1988	Cum. 1987	Cum. 1988	1988	Cum. 1988	1988	Cum. 1988	Cum. 1987	1988	Cum. 1988	Cum. 1987
UNITED STATES	32	36	108	-	2	89	216	55	204	24	60	135	-	7	21
NEW ENGLAND	4	-	1	-	-	5	27	1	3	2	4	2	-	-	-
Maine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N.H.	-	-	-	-	-	-	5	-	2	-	2	1	-	-	-
Vt.	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-
Mass.	3	-	1	-	-	-	13	1	1	-	-	-	-	-	-
R.I.	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-
Conn.	1	-	-	-	-	-	4	-	-	2	2	1	-	-	-
MID. ATLANTIC	3	14	16	-	-	24	22	5	12	3	3	14	-	-	-
Upstate N.Y.	1	-	-	-	-	1	13	2	2	1	1	10	-	-	-
N.Y. City	2	-	-	-	-	12	2	-	-	-	-	-	-	-	-
N.J.	-	-	-	-	-	1	7	-	5	-	-	-	-	-	-
Pa.	-	14	16	-	-	10	-	3	5	2	2	4	-	-	-
E.N. CENTRAL	1	-	-	-	-	22	26	9	56	2	3	25	-	-	2
Ohio	-	-	-	-	-	-	14	-	-	-	-	12	-	-	-
Ind.	-	-	-	-	-	-	1	-	6	-	-	-	-	-	-
Ill.	-	-	-	-	-	2	1	4	5	-	-	-	-	-	1
Mich.	1	-	-	-	-	20	10	5	37	2	3	3	-	-	1
Wis.	-	-	-	-	-	-	-	-	8	-	-	10	-	-	-
W.N. CENTRAL	-	-	-	-	-	-	6	6	23	3	8	15	-	-	-
Minn.	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
Iowa	-	-	-	-	-	-	-	-	8	2	3	2	-	-	-
Mo.	-	-	-	-	-	-	5	3	7	-	-	5	-	-	-
N. Dak.	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-
S. Dak.	-	-	-	-	-	-	-	-	-	1	2	1	-	-	-
Nebr.	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Kans.	-	-	-	-	-	-	1	3	7	-	1	4	-	-	-
S. ATLANTIC	4	-	-	-	2	-	22	7	10	4	10	29	-	-	-
Del.	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Md.	-	-	-	-	1	-	3	-	-	-	-	-	-	-	-
D.C.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Va.	-	-	-	-	-	-	4	2	3	-	1	13	-	-	-
W. Va.	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-
N.C.	-	-	-	-	1	-	2	1	3	1	5	11	-	-	-
S.C.	3	-	-	-	-	-	4	-	-	-	-	-	-	-	-
Ga.	-	-	-	-	-	-	3	2	2	3	3	2	-	-	-
Fla.	1	-	-	-	-	-	6	2	2	-	-	-	-	-	-
E.S. CENTRAL	1	-	-	-	-	-	24	-	36	-	2	3	-	-	2
Ky.	-	-	-	-	-	-	4	-	1	-	-	1	-	-	2
Tenn.	-	-	-	-	-	-	14	-	34	-	2	-	-	-	-
Ala.	1	-	-	-	-	-	6	-	1	-	-	-	-	-	-
Miss.	-	-	-	-	-	-	-	N	N	-	-	2	-	-	-
W.S. CENTRAL	2	-	-	-	-	-	4	6	16	-	-	2	-	-	-
Ark.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
La.	-	-	-	-	-	-	-	4	5	-	-	-	-	-	-
Okla.	2	-	-	-	-	-	-	1	7	-	-	2	-	-	-
Tex.	-	-	-	-	-	-	4	1	4	-	-	-	-	-	-
MOUNTAIN	1	15	27	-	-	-	10	7	11	8	11	3	-	-	1
Mont.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	1	-	-	7	7	-	-	-	-
Wyo.	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-
Colo.	-	15	27	-	-	-	4	-	2	-	-	-	-	-	-
N. Mex.	-	-	-	-	-	-	3	N	N	-	-	1	-	-	-
Ariz.	-	-	-	-	-	-	2	7	8	-	1	-	-	-	-
Utah	-	-	-	-	-	-	-	-	1	1	2	-	-	-	1
Nev.	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PACIFIC	16	7	64	-	-	38	75	14	37	2	19	42	-	7	16
Wash.	1	-	-	-	-	-	2	-	3	1	2	5	-	-	-
Oreg.	2	-	29	-	-	1	7	N	N	-	2	8	-	-	1
Calif.	12	7	35	-	-	37	64	14	32	1	7	28	-	7	14
Alaska	1	-	-	-	-	-	1	-	2	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-	1	-	-	-	8	1	-	-	1
Guam	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
P.R.	1	-	-	-	-	-	1	-	2	-	-	2	-	-	-
V.I.	-	-	-	-	-	-	-	2	4	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*For measles only, imported cases includes both out-of-state and international importations.

N: Not notifiable U: Unavailable †International §Out-of-state

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending January 30, 1988 and January 31, 1987 (4th Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1988	Cum. 1987	Cum. 1988	Cum. 1988	Cum. 1987	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988
UNITED STATES	2,399	2,515	15	890	1,190	11	18	6	185
NEW ENGLAND	57	33	3	16	19	-	3	-	2
Maine	2	-	1	-	1	-	-	-	-
N.H.	1	-	2	-	1	-	-	-	2
Vt.	-	-	-	-	1	-	-	-	-
Mass.	25	22	-	7	3	-	2	-	-
R.I.	-	-	-	1	-	-	-	-	-
Conn.	29	11	-	8	13	-	1	-	-
MID. ATLANTIC	439	280	1	179	220	-	-	-	19
Upstate N.Y.	24	6	1	25	49	-	-	-	-
N.Y. City	365	173	-	76	101	-	-	-	-
N.J.	48	45	-	40	45	-	-	-	-
Pa.	2	56	-	38	25	-	-	-	19
E.N. CENTRAL	67	80	1	144	162	1	-	-	5
Ohio	5	7	-	28	27	-	-	-	-
Ind.	9	1	-	3	3	-	-	-	-
Ill.	32	53	-	44	76	-	-	-	2
Mich.	20	11	1	62	52	1	-	-	-
Wis.	1	8	-	7	4	-	-	-	3
W.N. CENTRAL	11	13	3	27	36	4	-	-	34
Minn.	1	4	-	7	6	-	-	-	14
Iowa	1	1	1	3	5	-	-	-	11
Mo.	3	8	1	10	19	3	-	-	1
N. Dak.	-	-	-	-	1	-	-	-	4
S. Dak.	1	-	-	7	2	-	-	-	-
Nebr.	2	-	1	-	-	1	-	-	1
Kans.	3	-	-	-	3	-	-	-	3
S. ATLANTIC	831	866	3	203	217	1	1	6	51
Del.	14	6	-	3	1	1	-	-	-
Md.	40	40	-	25	19	-	-	-	21
D.C.	21	8	-	6	10	-	-	-	-
Va.	26	23	-	23	23	-	-	-	13
W. Va.	1	-	-	6	10	-	-	-	4
N.C.	51	48	2	9	22	-	-	6	-
S.C.	22	57	-	35	31	-	-	-	-
Ga.	136	134	-	14	11	-	1	-	13
Fla.	520	550	1	82	90	-	-	-	-
E.S. CENTRAL	155	202	2	106	152	3	-	-	11
Ky.	2	-	1	40	24	3	-	-	7
Tenn.	51	75	-	18	33	-	-	-	-
Ala.	60	48	1	44	49	-	-	-	4
Miss.	42	79	-	4	46	-	-	-	-
W.S. CENTRAL	308	328	-	54	69	-	-	-	25
Ark.	-	13	-	-	5	-	-	-	7
La.	38	47	-	19	25	-	-	-	-
Okla.	13	14	-	11	9	-	-	-	3
Tex.	257	254	-	24	30	-	-	-	15
MOUNTAIN	64	70	1	13	24	2	2	-	17
Mont.	-	3	-	-	-	-	1	-	14
Idaho	-	1	1	-	2	-	-	-	-
Wyo.	-	-	-	-	-	-	-	-	2
Colo.	12	7	-	1	-	2	1	-	-
N. Mex.	7	7	-	4	6	-	-	-	-
Ariz.	11	32	-	6	14	-	-	-	1
Utah	2	-	-	-	-	-	-	-	-
Nev.	32	20	-	2	2	-	-	-	-
PACIFIC	467	643	1	148	291	-	12	-	21
Wash.	-	11	-	8	10	-	1	-	-
Oreg.	11	13	-	10	7	-	1	-	-
Calif.	453	618	1	114	252	-	10	-	21
Alaska	-	-	-	3	7	-	-	-	-
Hawaii	3	1	-	13	15	-	-	-	-
Guam	-	-	-	-	1	-	-	-	-
P.R.	52	52	-	6	10	-	-	-	4
V.I.	1	2	-	-	1	-	-	-	-
Amer. Samoa	-	1	-	-	12	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending January 30, 1988 (4th Week)

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	687	494	134	39	7	13	55
Boston, Mass.	196	119	47	18	3	9	27
Bridgeport, Conn.	45	33	6	4	1	1	2
Cambridge, Mass.	23	20	3	-	-	-	3
Fall River, Mass.	24	22	2	-	-	-	1
Hartford, Conn.§	76	51	15	6	2	2	1
Lowell, Mass.	33	21	12	-	-	-	-
Lynn, Mass.	29	19	9	1	-	-	-
New Bedford, Mass.	25	21	3	1	-	-	1
New Haven, Conn.	42	28	9	5	-	-	3
Providence, R.I.	56	48	6	2	-	-	6
Somerville, Mass.	6	5	1	-	-	-	-
Springfield, Mass.	49	37	10	-	1	1	6
Waterbury, Conn.	26	21	4	1	-	-	4
Worcester, Mass.	57	49	7	1	-	-	1
MID. ATLANTIC	2,891	1,880	575	292	63	81	148
Albany, N.Y.	42	30	3	5	2	2	-
Allentown, Pa.	21	13	5	3	-	-	-
Buffalo, N.Y.	100	61	25	8	4	2	15
Camden, N.J.	42	27	8	2	3	2	-
Elizabeth, N.J.	33	26	4	1	2	-	1
Erie, Pa.†	41	29	10	2	-	-	3
Jersey City, N.J.	71	45	17	5	1	3	1
N.Y. City, N.Y.	1,519	951	308	190	29	41	62
Newark, N.J.	108	51	24	23	6	4	6
Paterson, N.J.	39	19	10	5	2	3	-
Philadelphia, Pa.	394	272	77	21	10	14	22
Pittsburgh, Pa.†	80	49	19	9	-	3	5
Reading, Pa.	40	34	4	2	-	-	2
Rochester, N.Y.	123	94	20	2	-	7	7
Schenectady, N.Y.	22	11	8	3	-	-	4
Scranton, Pa.†	31	23	7	-	1	-	2
Syracuse, N.Y.	85	70	10	4	1	-	10
Trenton, N.J.	47	30	11	5	1	-	3
Utica, N.Y.	19	18	1	-	-	-	3
Yonkers, N.Y.	34	27	4	2	1	-	2
E.N. CENTRAL	2,490	1,665	516	165	55	89	113
Akron, Ohio	69	46	13	5	4	1	-
Canton, Ohio	29	21	5	2	1	-	3
Chicago, Ill.§	564	362	125	45	10	22	16
Cincinnati, Ohio	209	148	39	12	3	7	24
Cleveland, Ohio	161	114	26	11	4	6	1
Columbus, Ohio	171	115	31	15	4	6	-
Dayton, Ohio	118	81	29	3	3	2	5
Detroit, Mich.	251	141	59	28	11	12	5
Evansville, Ind.	43	37	5	-	-	1	4
Fort Wayne, Ind.	58	44	8	1	4	1	6
Gary, Ind.	19	12	4	3	-	-	1
Grand Rapids, Mich.	88	59	21	4	-	4	7
Indianapolis, Ind.	183	114	46	8	1	14	3
Madison, Wis.	40	30	5	2	2	1	3
Milwaukee, Wis.	153	99	28	17	2	7	3
Peoria, Ill.	57	40	15	1	-	1	5
Rockford, Ill.	66	52	10	-	2	2	9
South Bend, Ind.	49	36	11	1	-	1	6
Toledo, Ohio	117	85	23	5	3	1	12
Youngstown, Ohio	45	29	13	2	1	-	-
W.N. CENTRAL	907	658	163	53	13	20	62
Des Moines, Iowa	71	54	12	5	-	-	4
Duluth, Minn.	31	20	8	-	2	1	1
Kansas City, Kans.	50	33	10	5	1	1	1
Kansas City, Mo.	123	92	20	6	2	3	11
Lincoln, Nebr.	25	20	2	2	1	-	4
Minneapolis, Minn.	176	135	28	7	1	5	12
Omaha, Nebr.	111	83	20	5	2	1	9
St. Louis, Mo.	165	110	30	18	3	4	9
St. Paul, Minn.	72	49	14	5	1	3	4
Wichita, Kans.	83	62	19	-	-	2	7
S. ATLANTIC	1,541	944	294	184	51	68	77
Atlanta, Ga.	232	135	47	28	6	16	7
Baltimore, Md.	355	227	55	45	13	15	20
Charlotte, N.C.	101	61	21	12	4	3	5
Jacksonville, Fla.	116	73	21	12	7	3	5
Miami, Fla.§	91	52	19	16	3	1	1
Norfolk, Va.	70	42	16	6	3	3	3
Richmond, Va.	112	71	21	9	3	8	9
Savannah, Ga.	64	51	11	2	-	-	5
St. Petersburg, Fla.	88	63	9	7	3	6	7
Tampa, Fla.	103	59	27	13	2	2	9
Washington, D.C.	184	91	42	34	6	11	6
Wilmington, Del.	25	19	5	-	1	-	-
E.S. CENTRAL	1,025	702	203	61	34	25	65
Birmingham, Ala.	160	109	36	9	5	1	2
Chattanooga, Tenn.	86	67	12	4	1	2	10
Knoxville, Tenn.	83	50	18	6	4	5	3
Louisville, Ky.	183	131	37	6	4	5	18
Memphis, Tenn.	236	165	43	18	5	5	22
Mobile, Ala.	80	60	10	4	3	3	6
Montgomery, Ala.	53	34	14	2	3	-	1
Nashville, Tenn.	144	86	33	12	9	4	3
W.S. CENTRAL	1,586	1,023	328	123	60	52	90
Austin, Tex.	89	58	16	5	6	4	6
Baton Rouge, La.	65	47	10	7	1	-	1
Corpus Christi, Tex.	52	34	15	1	1	1	5
Dallas, Tex.	247	154	52	26	8	7	2
El Paso, Tex.	64	38	14	6	5	1	4
Fort Worth, Tex	113	77	21	6	1	8	7
Houston, Tex.§	308	176	74	34	13	11	7
Little Rock, Ark.	91	61	21	1	6	2	7
New Orleans, La.	110	81	15	5	4	5	-
San Antonio, Tex.	218	136	46	18	11	7	23
Shreveport, La.	121	81	23	8	4	5	14
Tulsa, Okla.	108	80	21	6	-	1	14
MOUNTAIN	843	560	161	65	28	29	61
Albuquerque, N. Mex.	77	56	9	7	4	1	4
Colo. Springs, Colo.	40	25	7	4	4	-	7
Denver, Colo.	195	126	34	21	6	8	13
Las Vegas, Nev.	133	83	29	10	6	5	8
Ogden, Utah	22	15	6	1	-	-	4
Phoenix, Ariz.	156	100	37	9	4	6	2
Pueblo, Colo.	28	23	4	-	-	1	4
Salt Lake City, Utah	56	38	11	4	-	3	5
Tucson, Ariz.	136	94	24	9	4	5	14
PACIFIC	2,444	1,626	451	218	82	54	165
Berkeley, Calif.	23	17	3	1	-	2	-
Fresno, Calif.	96	69	18	2	2	5	9
Glendale, Calif.	35	29	4	2	-	-	2
Honolulu, Hawaii	79	54	13	7	1	4	8
Long Beach, Calif.	84	54	18	6	2	4	11
Los Angeles Calif.	743	465	149	81	31	5	39
Oakland, Calif.	94	61	16	13	2	2	5
Pasadena, Calif.	46	32	8	4	1	1	4
Portland, Oreg.	205	149	33	10	8	5	14
Sacramento, Calif.	164	103	32	17	5	7	12
San Diego, Calif.	215	138	38	21	11	6	17
San Francisco, Calif.	170	103	28	29	6	4	3
San Jose, Calif.	196	137	40	10	6	3	13
Seattle, Wash.	183	135	25	14	5	4	14
Spokane, Wash.	54	43	9	1	-	1	9
Tacoma, Wash.	57	37	17	-	2	1	5
TOTAL	14,414††	9,552	2,825	1,200	393	431	836

*Mortality data in this table are voluntarily reported from 121 cities in the United states, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

**Pneumonia and influenza.

†Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

††Total includes unknown ages.

§Data not available. Figures are estimates based on average of past 4 weeks.

Semen Banking — Continued

In the past, fresh sperm has been routinely recommended for use in artificial insemination and may still be appropriate when semen is from a donor in a mutually monogamous marriage/relationship with the recipient. However, it is now considered prudent to freeze samples from all other donors and store them in that state for a minimum of 6 months. Before frozen semen is used for artificial insemination, a blood sample taken at the time the semen was collected and a second blood sample taken aminimum of 6 months later should be tested for HIV antibody. Responsible medical personnel must be certain that the blood samples are from the same donor, and the donor's identity must be assured. Frozen semen should be used only if both of the tests are negative. These special safeguards should be observed in addition to the preliminary precautions that the donor had 1) no history of risk factors for HIV infection and 2) a physical examination, properly documented by a licensed physician at the time of donation, that showed no obvious evidence of HIV infection.

The American Fertility Society has already modified its guidelines in accordance with these recommendations (*10*), and these revised guidelines have been accepted by the American College of Obstetricians and Gynecologists. The American Association of Tissue Banks is in the process of similarly revising its standards (personal communication).

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Epidemiologic Notes and Reports

Acute Respiratory Illness Among Cruise-Ship Passengers — Asia

In late October 1987, influenza A(H3N2) was isolated from a throat culture specimen collected from an 83-year-old woman in Los Angeles County, California. The patient had been hospitalized with pneumonia and congestive heart failure 1 day after returning from a 19-day tour and cruise in Asia. When interviewed in November, the woman said many tourists had been ill with an acute respiratory illness (ARI)

Respiratory Illness — Continued

while aboard the cruise ship. The patient's physician became ill with an ARI 36 hours after examining the woman. Influenza A(H3N2) virus was also isolated from his throat culture.

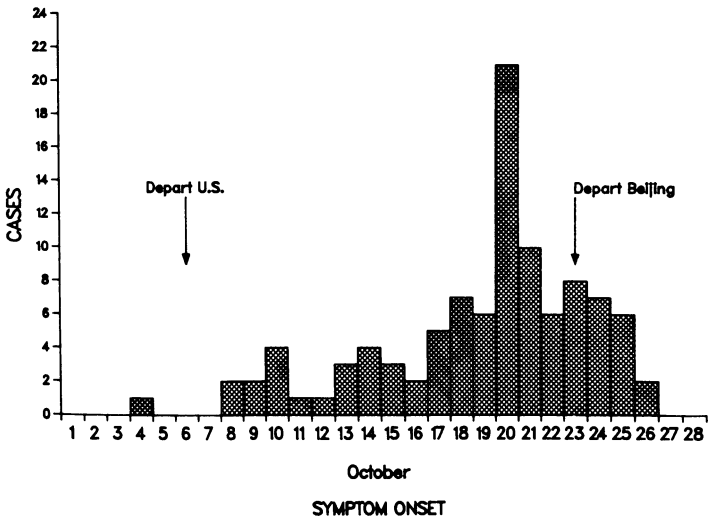
The tour group convened in Hong Kong on October 7 and toured the city for 2 days before boarding a cruise ship on October 9. The ship departed the following day and visited Shanghai, People's Republic of China (PRC), on October 13-14; Pusan, Korea, on October 17; and Yantai and Qinhuandao, PRC, on October 19 and 20, respectively. The tour group disembarked at Qinhuandao for an overland journey and a 3-day visit in Beijing before returning to the United States by air.

A telephone survey was conducted to determine the impact of ARI among the cruise-ship passengers. There were 427 passengers (median age, 66 years): 222 were residents of California, 201 were residents of 31 other states and the District of Columbia, three were from foreign countries, and the residence of one was not identified. Between November 21 and December 15, attempts were made to contact each of the 423 U.S. residents by telephone. A standard questionnaire was administered to the 277 (65%) persons who were interviewed; 19 persons (5%) refused to be interviewed; and 127 (30%) could not be reached.

One hundred four (38%) of the persons interviewed reported an ARI during the period October 1-30. Symptoms for 94 of these persons included fever or feverishness with either cough or sore throat; 10 persons reported cough, sore throat, and myalgias. The peak of the outbreak occurred on October 20 (Figure 1), 6 days after the ship's visit to Shanghai and 3 days after the visit to Pusan, Korea. Seven passengers (2.5%) reported that they were diagnosed by a physician as having pneumonia after their return home; five (71%) of the seven were hospitalized. No deaths were reported.

To determine the potential for secondary spread in the community, passengers were asked to identify nontourist contacts who had onset of an ARI within 3 days of the tourist's return home. Ten (36%) of the 28 households with a tourist who reported

FIGURE 1. Acute respiratory illness among cruise-ship passengers, by date of onset of symptoms — October 1-28, 1987



Respiratory Illness — Continued

late onset of symptoms* reported that at least one nontourist contact had become ill. Two (5%) of the 42 households without a patient with late onset of symptoms reported contacts who had become ill (relative risk = 7.5, 95% confidence interval = 2.3 to 24.5).

Data from persons over 64 years of age were analyzed separately because this age group is considered to be at increased risk for complications following influenza infection (*1*). To decrease this risk, the Immunization Practices Advisory Committee (ACIP) recommends that all persons over 64 receive influenza vaccine annually (*1*). In calculating vaccine efficacy, investigators assumed that 1) all cases of ARI were due to influenza and 2) risk factors for influenza-related complications were similar for the vaccinated and unvaccinated groups. The attack rate among the 36 tourists who were over 64 years of age and had received the 1987-88 influenza vaccine in August or September 1987 was 36%; the rate was 37% among the 127 unvaccinated travelers in this age group. Duration of illness, defined as the number of days before patients felt that they had returned to their normal level of health, did not differ significantly between the two groups. The mean duration was 19.3 days for the vaccinated group and 21.9 days for the unvaccinated group (t test = 0.62, $p<0.40$). The hospitalization rate was the same (3%) among the vaccinated and unvaccinated passengers in this age-group.

Antigenic analysis of the isolates from the two culture-confirmed index cases was performed by reciprocal hemagglutination-inhibition tests with sera taken from infected ferrets during the convalescent stage of illness. The results indicate that the isolates are type A(H3N2) variants similar to influenza viruses isolated in Asian and Pacific countries since April 1987 (*2*).

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Editorial Note: This is the second outbreak of ARI among U.S. tourists who have traveled aboard cruise ships in the Pacific Basin during the last 6 months. The previous outbreak was also identified following reports of a traveler who was acutely ill upon returning from a trip and for whom influenza A(H3N2) infection was confirmed (*3*). The extent of illness among nontourist household contacts in the present outbreak suggests that an infectious agent that is transmitted from person to person was responsible. The following evidence suggests that influenza virus was involved: 1) influenza A(H3N2) was isolated from a tourist and her physician, 2) viruses from these index cases were antigenically similar to strains present in Hong Kong (*4*) and Shanghai during September 1987 (Health and Antiepidemic Station, Shanghai, PRC, unpublished data) and 3) the sharp peak in the epidemic curve and high attack rates are typically seen in influenza outbreaks in partially closed settings, including military vessels (*5,6*), aircraft (*7,8*), and institutions (*9*).

Most tourists with ARI had onset of illness in late October and were ill either during the flight home to the United States or within 3 days of returning home. Although the duration of illness following influenza infection for persons over 64 years of age may be longer than the 5-7 days usually experienced by younger adults (*10*), the longer

*Less than 4 days before the end of the tour or within 3 days of returning home.

Respiratory Illness — Continued

durations reported in this outbreak may be partially due to travel-related factors such as jet lag. Nevertheless, these data suggest that influenza vaccine did not attenuate illness duration in this group.

There are at least three possible reasons for the lack of vaccine efficacy demonstrated: 1) repeated exposures to infectious persons or different dynamics of transmission (*11,12*) occurring in a population in a partially closed setting may overcome levels of immunity that might be protective in other settings, 2) some of the illnesses may have been caused by other respiratory pathogens circulating at the same time (*13*), or 3) an influenza virus representing a clinically significant antigenic drift from the vaccine strain caused the outbreak.

The observations in this investigation support the results of laboratory studies (*2*) that suggest that the A/Leningrad/86(H3N2) component of the vaccine may not provide optimal protection against the strains of virus recently identified in the Pacific Basin and now present in the United States. The need for long-term care facilities housing high-risk patients to develop contingency plans for rapidly initiating amantadine prophylaxis in the event of influenza A outbreaks should be reemphasized (*2*), particularly in light of continuing reports of influenza A(H3N2) outbreaks in such institutions this winter.

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Epidemiologic Notes and Reports

Influenza Update — United States

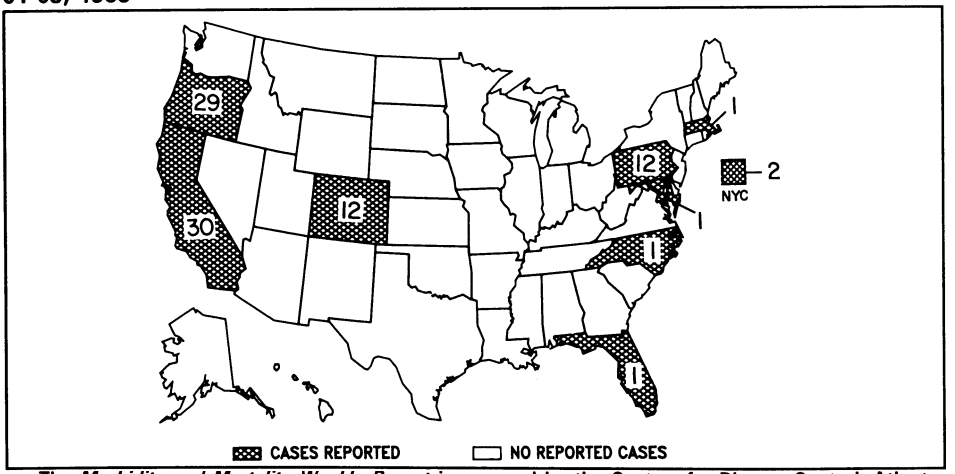
Following are indicators of influenza activity in the United States for the weeks ending January 9, 16, 23, and 30:

	Report Week Ending			
	Jan 09 1988	Jan 16 1988	Jan 23 1988	Jan 30 1988
Influenza-associated morbidity levels reported by state and territorial epidemiologists				
Number of states reporting sporadic activity:*	23	25	29	31
Number of states reporting regional activity:†	7	5	10	11
Number of states reporting widespread activity:§	0	2	2	4
Isolates reported by WHO Collaborating Laboratories and other laboratories				
Cumulative number of states reporting isolates of influenza A(H3N2):	12	16	23	26
Cumulative number of states reporting isolates of influenza B:	4	6	6	6
Reports from sentinel physicians¶				
Patients seen with influenza-like illness, expressed as percent of total patient visits:	6%	5%	4%	6%
Sentinel physicians reporting outbreaks, expressed as percent of total number of reports received for week:	16%	21%	18%	18%
Percentage reporting for week:	66%	69%	64%	53%

A report on the antigenic properties of recent influenza A(H3N2) viruses can be found in volume 37, number 3 of the *MMWR*, pages 38-40, 46-47.

*Sporadically occurring cases, no known outbreaks.
†Outbreaks in counties whose total population comprises less than 50% of total state population.
§Outbreaks in counties whose total population comprises 50% or more of total state population.
¶Members of the American Academy of Family Physicians who submit weekly influenza surveillance reports based on their patient population.

FIGURE I. Reported measles cases — United States, week 52, 1987 and weeks 01-03, 1988



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The data in this report are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday. The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333.

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